

therapy suggests the presence of upper urinary tract infection and may be an indication for radiologic investigation of the urinary tract.

LARRY J. BARAFF, MD

#### REFERENCES

Fang LS, Tolkoff-Rubin NE, Rubin RH: Efficacy of single-dose and conventional amoxicillin therapy in urinary-tract infections localized by the antibody-coated bacteria technique. *N Engl J Med* 1978 Feb 23; 298(8):413-416

Kallenius G, Winberg J: Urinary tract infections treated with single dose of short-acting sulphonamide. *Br Med J* 1979 May 5; 1(6172):1175-1176

Stamm WE: Recent developments in the diagnosis and treatment of urinary tract infections—University of Washington (Specialty Conference). *West J Med* 1982 Sep; 137:213-220

Stamm WE, Wagner KF, Amsel R, et al: Causes of the acute urethral syndrome in women. *N Engl J Med* 1980 Aug 21; 303:409-415

Tolkoff-Rubin NE, Weber D, Fang LS, et al: Single-dose therapy with trimethoprim-sulfamethoxazole for urinary tract in women. *Rev Infect Dis* 1982 Mar-Apr; 4(2):444-448

## Radiography in Cervical Spine Trauma

ONE OF THE MOST CHALLENGING and vexing problems in emergency medicine is cervical spine trauma. Not only do patients with such trauma often have multi-system injuries—in which abdominal and thoracic injuries may have the highest treatment priority—but they also may have an altered mental status from associated head injury or concomitant use of alcohol or drugs. Interpreting preliminary radiographs is often difficult because of the complex anatomy of the area and the technically suboptimal studies that sometimes result from portable technique, poor patient cooperation and reluctance to move a patient for proper positioning. Nonetheless, failure to recognize significant injury may result in disastrous consequences.

The traditional radiographic examination for suspected cervical spine trauma has been a cross-table lateral view. Although this is a generally quick and effective way to assess most significant injuries, some Jefferson and odontoid fractures, as well as rotary injuries of C1-2, may not be apparent on the cross-table lateral view, and injuries involving C-7 may be difficult to interpret because of overlapping soft tissues and bony structures of the shoulder. Occasionally, even mid-cervical injuries may be missed on a single cross-table lateral view because of the subtlety of the injury or poor technical quality of the initial radiographs. Consequently, a standard anteroposterior and open-mouth or modified odontoid view should be done routinely before mobilizing a patient's head or neck in all cases of suspected cervical spine injury. Likewise, vertebral arch views (pillar views) should be done if there is evidence of a hyperextension injury.

Although anteroposterior and lateral radiographs continue to be the mainstay of radiographic screening in spinal injuries, their use leads to an underestimation of the degree of injury in a substantial number of patients. In the past, plain film tomography has been used to further evaluate questionable findings seen on the initial radiographs; however, as with cranial and abdominal trauma, computerized tomography (CT) has added a new dimension to the management of spinal injuries.

CT studies can provide information about spinal

injuries that may not be available from plain radiographs or conventional tomography, and they do this rapidly and safely. Most CT examinations of the cervical spine can be completed within 30 minutes, often in conjunction with studies of the head, chest or abdomen, and the only movement that is required is sliding a patient on and off a CT scanner couch. CT scans clearly delineate vertebral alignment and integrity, especially of the posterior elements. They are generally easier to interpret than conventional tomograms because of their superior contrast resolution, and they expose patients to less radiation. In addition, CT gives information about the neural canal (for example, the location of bone or bullet fragments and whether they compromise the canal), spinal cord, thecal sac and nerve roots. When available, sagittal and coronal reformat images are useful in showing the state of the neural canal in the longitudinal dimension without requiring additional patient movement or radiation.

In a number of cases the method of treatment for a spinal injury has been changed directly as a result of CT findings. Thus, a CT scan of the cervical spine should be done whenever possible in the presence of a bony injury seen on preliminary radiographs or when a neurologic deficit appears to be from spinal cord injury, even in the absence of bony injury detectable on the initial radiographs.

KENNETH W. KIZER, MD, MPH

#### REFERENCES

Brant-Zawadzki M, Miller EM, Federle MP: CT in the evaluation of spine trauma. *AJR* 1981 Feb; 136:369-375

Brant-Zawadzki M: Computed tomographic evaluation of the traumatized spine. In Moss AA, Goldberg HI (Eds): *Computed Tomography, Ultrasound and X-Ray: An Integrated Approach*. San Francisco, University of California, Department of Radiology, 1982, pp 351-358

Miller MD, Gehweiler JA, Martinez S, et al: Significant new observations on cervical spine trauma. *AJR* 1978 Apr; 130:659-663

Shaffer MA, Doris PE: Limitation of the cross table lateral view in detecting cervical spine injuries: A retrospective analysis. *Ann Emerg Med* 1981 Oct; 10:508-513

## Hypertensive Emergencies

A PRONOUNCED AND SUDDEN RISE in blood pressure may represent an immediate threat to life. Prompt reduction of blood pressure in such settings is essential to prevent or reverse the morbid consequences.

The urgency of the clinical situation is determined by the presence or absence of acute end-organ dysfunction. Thus, patients with intracerebral hemorrhage or hypertensive encephalopathy, acute left ventricular failure or acute myocardial ischemia must have their blood pressure lowered immediately. Sodium nitroprusside is the drug of choice for such patients, as it provides both effective and titratable antihypertensive effect and the ability to discontinue the drug quickly if tissue perfusion is impaired.

Nitroprusside is administered by constant intravenous infusion at a dose of 0.5 to 8.0  $\mu$ g per kg of body weight per minute. Practically, this may be achieved by mixing 50 mg of nitroprusside in a solution of 250 ml of 5 percent dextrose in water and beginning the infusion (for a 70-kg patient) at 5 microdrops a minute (5 ml an hour). The infusion rate is then in-